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8/28/2012 8:41 AM

DOCKET NO. D-1971-096 CP-5

DELAWARE RIVER BASIN COMMISSION

Discharge to a Tributary of Special Protection Waters

Warren County (Pequest River) Municipal Utilities Authority
Oxford Wastewater Treatment Plant Upgrade
Oxford Township, Warren County, New Jersey

PROCEEDINGS

This docket is issued in response to an Application submitted to the Delaware River Basin Commission (DRBC or Commission) by Cerenzio & Panaro, P.C. on behalf of the Warren County (Pequest River) Municipal Utilities Authority (Warren County MUA) on November 1, 2011 (Application), for review of a wastewater treatment plant (WWTP) modification. New Jersey Pollutant Discharge Elimination System (NJPDES) Permit No. NJ0035483 for the WWTP discharge was approved by the New Jersey Department of Environmental Protection (NJDEP) on September 26, 2011.

The Application was reviewed for inclusion/continuation of the project discharge in the Comprehensive Plan and approval under Section 3.8 of the *Delaware River Basin Compact*. The Warren County Planning Department has been notified of pending action. A public hearing on this project was held by the DRBC on September 12, 2012.

A. DESCRIPTION

1. Purpose. The purpose of this docket is to approve the existing 0.5 million gallons per day (mgd) Warren County MUA Oxford WWTP, also referred to as the Oxford Area Wastewater Treatment Facility or Oxford Area Water Pollution Control Facility. This docket also: 1) approves a proposed upgrade to the WWTP, consisting of replacing the existing conventional activated sludge treatment system with a new Ludzack-Ettinger treatment system with mixed media filtration, and 2) continues a Total Dissolved Solids (TDS) determination consisting of an effluent limit of 7,000 pounds per day (lbs/day) from the previous DRBC approval.

2. **Location**. The docket holder's WWTP is located on an access road off of Pequest Road in Oxford Township, Warren County, New Jersey. The WWTP will continue to discharge to the Pequest River at River Mile 197.8 – 7.2 (Delaware River – Pequest River) in the drainage area to the Lower Delaware Special Protection Waters (SPW) area.

The WWTP outfall is located approximately one (1) mile away from the Oxford WWTP, in White Township, Warren County, New Jersey, in the Pequest River Watershed as follows:

OUTFALL NO.	LATITUDE (N)	LONGITUDE (W)
001	40° 49' 44"	75° 58' 38"

3. **Area Served**. The docket holder's WWTP will continue to receive domestic wastewater flows from Oxford Township, Warren County, New Jersey and treated landfill leachate from the Pollution Control Financing Authority of Warren County (PCFAWC) landfill, located in White Township, Warren County, New Jersey.

For the purpose of defining the Area Served, Section B (Type of Discharge) and D (Service Area) of the docket holder's Application are incorporated herein by reference, to the extent consistent with all other conditions contained in the DECISION Section of this docket.

4. **Physical Features**.

a. **Design Criteria**. The docket holder's existing WWTP, hydraulically designed for 0.5 mgd, treats domestic sanitary wastewater and pre-treated landfill leachate through a conventional activated sludge treatment process. The docket holder's upgraded WWTP will remain at a hydraulic design capacity of 0.5 mgd and will treat the same wastewater influent through the use of a Ludzack-Ettinger treatment process with mixed media filtration.

a. **Facilities**. The existing WWTP consists of a grit removal and screening chamber, two (2) primary settling tanks, two (2) aeration tanks, two (2) secondary settling tanks (final clarifiers), two (2) chlorine contact tanks for disinfection, dechlorination through the addition of sulfur dioxide, and post-aeration.

The proposed upgrade include: modifications to the existing influent pumping station, a new influent meter chamber, a new influent mechanical screen; modifications to a portion of the existing primary settling tanks to be an oil/grease skimming tank; modifications to the remaining portion of the existing primary settling tanks and a portion of the existing aeration tanks for the Ludzack-Ettinger treatment process, including two (2) anoxic zones and two (2) aerobic zones; the construction of a new aeration basin with two (2) zones; the construction of two (2) new final clarifiers to replace the existing final clarifiers, which will be taken offline; the construction of a mixed media filtration building, including three (3) filter cells; modifications to the existing chlorine contact facilities; and the construction of a new sludge thickening tank (gravity thickener).

The docket holder submitted conceptual design plans of the project WWTP upgrade. The final plans and specifications are required to be submitted to DRBC within three (3) months of docket approval (see Condition II.k. in the DECISION section).

The docket holder's WWTP discharges to waters classified as SPW and is required to have available emergency power. The docket holder indicated in the Application that the existing WWTP has full back-up power in the form of a diesel generator, and that emergency power for the upgraded WWTP shall be provided by the same generator. (SPW)

The docket holder's WWTP is not staffed 24 hours per day, and is required to have a remote alarm system that continuously monitors plant operations. The docket holder indicated in the Application that the existing WWTP has a remote alarm in place that continuously monitors plant operations, and that the existing remote alarm will remain in place for the upgraded WWTP. (SPW)

The docket holder has prepared and implemented an emergency management plan (EMP) in accordance with Commission requirements, and indicated in the Application that the EMP will be implemented for the upgraded WWTP as well. (SPW)

The docket holder's existing wastewater treatment facility does not discharge to Outstanding Basin Waters (OBW), and is not required to have a nonvisible discharge plume. (SPW)

The docket holder has performed and submitted a Natural Treatment Alternatives (NTA) Analysis and satisfactorily proven the technical infeasibility of using natural wastewater treatment technologies. See the FINDINGS section of this docket for the NTA Analysis evaluation. (SPW)

The docket holder's upgraded WWTP discharges to a tributary of SPW and therefore is not required to provide "Best Demonstrable Technology" (BDT) as a minimum level of treatment. (SPW)

The project facilities aren't located in the 100-year floodplain.

Wasted sludge will continue to be hauled off-site by a licensed hauler for disposal at a State-approved facility.

c. Water withdrawals. The potable water supply in the project service area is provided by wells owned and operated by New Jersey American Water Company. The water withdrawal serving the White Township portion of the Oxford WWTP's service area is described in detail in Docket No. D-1990-089 CP-3, approved by the Commission on October 27, 2004.

d. NJPDES Permit / DRBC Docket. NJPDES Permit No. NJ0035483 was approved by the NJDEP on September 26, 2011 and includes final effluent limitations for the project discharge of 0.5 mgd to surface waters classified by the NJDEP as Freshwater, Trout Maintenance (FW2-TM) and Category One (C1). The following average monthly effluent limits

are among those listed in the NJPDES Permit and meet or are more stringent than the effluent requirements of the DRBC, and are in effect until the project upgrade is completed and the upgraded WWTP goes into operation:

EFFLUENT TABLE A-1: DRBC Parameters Included in NJPDES Permit, effective until the project WWTP upgrade goes into operation (March 1, 2014)

OUTFALL 001 (Pequest River)		
PARAMETER	**LIMIT**	**MONITORING**
pH (Standard Units)	6 to 9 at all times	As required by NJPDES Permit
Total Suspended Solids	30 mg/l (85% minimum removal)	As required by NJPDES Permit
Dissolved Oxygen	4.0 mg/l (minimum at all times) 5.0 mg/l (daily average minimum)	As required by NJPDES Permit
BOD (5-Day at 20° C)	25 mg/l (85% minimum removal)	As required by NJPDES Permit
Ammonia Nitrogen	20 mg/l 37.9 kg/day	As required by NJPDES Permit
Fecal Coliform	200 colonies per 100 ml as a geo. avg.	As required by NJPDES Permit
Phosphorus	1.5 mg/l	As required by NJPDES Permit
Nitrate - Nitrogen	Monitor and Report	As required by NJPDES Permit

EFFLUENT TABLE A-2: DRBC Parameters Not Included in NJPDES Permit, effective until the project WWTP upgrade goes into operation (March 1, 2014)

OUTFALL 001 (Pequest River)		
PARAMETER	**LIMIT**	**MONITORING**
Total Dissolved Solids*	3,182 kg/day	Monthly
Total Nitrogen	Monitor and Report	Monthly

* Equivalent to 7,000 lbs/day. See Condition II.w in the DECISION section

The following average monthly effluent limits are among those listed in the NJPDES Permit and meet or are more stringent than the effluent requirements of the DRBC, and are in effect after the project upgrade is completed and the upgraded WWTP goes into operation:

EFFLUENT TABLE A-3: DRBC Parameters Included in NJPDES Permit, effective March 1, 2014

OUTFALL 001 (Pequest River)		
PARAMETER	**LIMIT**	**MONITORING**
pH (Standard Units)	6 to 9 at all times	As required by NJPDES Permit
Total Suspended Solids	30 mg/l (85% minimum removal)	As required by NJPDES Permit
Dissolved Oxygen	4.0 mg/l (minimum at all times) 5.0 mg/l (daily average minimum)	As required by NJPDES Permit
BOD (5-Day at 20° C)	25 mg/l (85% minimum removal)	As required by NJPDES Permit
Ammonia Nitrogen (5-1 to 10-31) (11-1 to 4-30)	7.6 mg/l; 14.4 kg/day 17 mg/l; 32.2 kg/day	As required by NJPDES Permit
Fecal Coliform	200 colonies per 100 ml as a geo. avg.	As required by NJPDES Permit
Phosphorus (5-1 to 10-31) (11-1 to 4-30)	1.08 kg/day 1.99 kg/day	As required by NJPDES Permit

OUTFALL 001 (Pequest River)		
PARAMETER	**LIMIT**	**MONITORING**
Nitrate - Nitrogen	58.7 kg/day*	Monthly*

* DRBC Requirement, NJPDES permit includes annual monitoring and reporting only for Nitrate-Nitrogen

EFFLUENT TABLE A-4: DRBC Parameters Not Included in NJPDES Permit, effective March 1, 2014

OUTFALL 001 (Pequest River)		
PARAMETER	**LIMIT**	**MONITORING**
Total Dissolved Solids*	3,182 kg/day	Monthly
Total Nitrogen (5-1 to 10-31) (11-1 to 4-30)	75.0 kg/day 92.8 kg/day	Monthly

* Equivalent to 7,000 lbs/day. See Condition II.w in the DECISION section

e. **Cost**. The overall cost of this project is estimated to be $12,835,000.

f. **Relationship to the Comprehensive Plan**. The Oxford WWTP was included in the Comprehensive Plan by Docket No. D-1971-096 CP-1 on January 26, 1972. The project WWTP was revised by Docket No. D-1971-096 CP (Revised) on May 24, 1978, by Docket No. D-1971-096 (Revised) (Amendment No. 1) on December 23, 1986, and by Docket No. D-1971-096 CP-3 on December 12, 2007.

B. FINDINGS

The docket holder submitted an application for approval of the existing 0.5 mgd Warren County MUA Oxford WWTP, also referred to as the Oxford Area Wastewater Treatment Facility or Oxford Area Water Pollution Control Facility. The Oxford WWTP discharge was most recently approved by the DRBC via DRBC Docket No. D-1971-096 CP-3 on December 12, 2007; however, the docket holder did not submit a renewal application prior to the docket expiring on December 31, 2008.

The Application also includes a proposed upgrade to the WWTP, consisting of replacing the existing conventional activated sludge treatment system with a new Ludzack-Ettinger treatment process with mixed media filtration.

In 1992, the DRBC adopted SPW requirements, as part of the DRBC *Water Quality Regulations* (WQR), designed to protect existing high water quality in applicable areas of the Delaware River Basin. One hundred twenty miles of the Delaware River from Hancock, New York downstream to the Delaware Water Gap has been classified by the DRBC as SPW. This stretch includes the sections of the river federally designated as "Wild and Scenic" in 1978 -- the Upper Delaware Scenic and Recreational River and the Delaware Water Gap National Recreation Area -- as well as an eight-mile reach between Milrift and Milford, Pennsylvania which is not federally designated. The SPW regulations apply to this 120-mile stretch of the river and its drainage area.

On July 16, 2008, the DRBC approved amendments to its WQR that provide increased protection for waters that the Commission classifies as Special Protection Waters. The portion of the Delaware River and its tributaries within the boundary of the Lower Delaware River Management Plan Area was approved for Special Protection Waters designation.

The docket holder's WWTP discharges to Pequest River, a tributary to the Lower Delaware River SPW area. The docket holder's WWTP discharge is located in the drainage area of Special Protection Waters and is required to comply with the SPW requirements, as outlined in Article 3.10.3A.2. of the WQR.

According to Article 3.10.3A.2.c.2) of the WQR, existing WWTPs located in SPW areas are required to perform a Natural Treatment Alternatives (NTA) analysis when they propose *"Substantial Alterations or Additions"* or are an "*Expanding Wastewater Treatment Plant*" (as defined in DRBC WQR *Section 3.10.3A.2.a.*). The project upgrade of the Oxford WWTP is considered to be a *"Substantial Alterations or Addition"*. The docket holder's engineer, Cerenzio & Panaro, P.C., submitted a letter dated April 25, 2012, as part of the Application that evaluated constructed wetlands, overland flow, rapid and slow rate infiltration, floating aquatic plant / pond system, and reed beds as NTAs and concluded that adequate land was not available for the construction of the NTAs and certain seasonal limits imposed as part of the NJPDES permit would not be able to be met by the NTAs investigated. DRBC staff concur with the analysis that the use of NTAs is not feasible for the Oxford WWTP upgrade.

Section 3.10.3.A.2.d.8) of the Commission's WQR requires that new wastewater treatment facilities and existing wastewater treatment facilities that are proposing *"Substantial Alterations or Additions"* demonstrate "….that the project will cause no measurable change to Existing Water Quality…" Section 3.10.3.A.2.d.9) of the Commission's WQR states that "For wastewater treatment facility projects subject to the no measurable change requirement, the demonstration of no measurable change to existing water quality shall be satisfied if the applicant demonstrates that the new or incremental increase in the facility's flow or load will cause no measurable change at the relevant water quality control point for the parameters denoted by asterisks in Tables 1 and 2 of this section: ammonia (NH_3-N); dissolved oxygen (DO); fecal coliform; nitrate (NO_3-N) or nitrite + nitrate (NO_2-N+NO_3-N); total nitrogen (TN) or Kjeldahl nitrogen (TKN); total phosphorous (TP); total suspended solids (TSS); and biological oxygen demand (BOD) (Table 1 only)."

The project upgrade of the existing WWTP is a *"Substantial Alterations or Addition"* and is subject to the no measurable change (NMC) to existing water quality (EWQ) requirement. NMC to EWQ is to be demonstrated at the Pequest River Boundary Control Point (Pequest BCP). The location at which EWQ is defined for the Pequest BCP is at the Orchard Street Bridge crossing of the Pequest River, in Belvidere, New Jersey (See Table 2.F. of the Commission's WQR).

Section 3.10.3A.2.a.4) of the WQR defines "Measurable Change" as "an actual or estimated change in a seasonal or non-seasonal mean (for SPW waters upstream of and including River Mile 209.5) or median (for SPW waters downstream of River Mile 209.5) in-stream

pollutant concentration that is outside the range of the two-tailed upper and lower 95 percent confidence intervals that define existing water quality."

EWQ is defined as the actual concentration of a water constituent at an in-stream site or sites, as determined through field measurements and laboratory analysis of data collected over a time period determined by the Commission to adequately reflect the natural range of the hydraulic and climatologic factors which affect water quality. EWQ is described in terms of:

(a) an annual or seasonal mean of the available water quality data,
(b) two-tailed upper and lower 95 percent confidence limits around the mean, and
(c) the 10^{th} and 90^{th} percentiles of the data set from which the mean was calculated.

The determination of NMC is based on a comparison of historical water quality observations at the Pequest BCP with the modeled (predicted) EWQ at the Pequest BCP. Historical water quality observations were used by Commission staff to define EWQ values for the Pequest BCP, and represent data collected twice per month during May through September, 2000 – 2004. The seven (7) parameters for which the NMC to EWQ must be demonstrated are Ammonia-Nitrogen (NH_3-N), Dissolved Oxygen (DO), Fecal Coliform, Nitrate (NO_3-N), Total Nitrogen (TN), Total Phosphorous (TP), and Total Suspended Solids (TSS) as indicated in Table 2.F. of the WQR.

The mean and upper 95^{th} percentile data for the seven (7) parameters above at the Pequest BCP, as defined in the WQR:

Table B-1: EWQ for the Pequest BCP

PARAMETER	MEAN	UPPER 95^{TH}%
NH_3-N (mg/l)	<0.05	0.05
DO (mg/l)*	9.89*	*
Fecal Coliform (#/100ml)	180	230
NO_3-N (mg/l)	1.29	1.45
TN (mg/l)	1.69	2.00
TP (mg/l)	0.10	0.11
TSS (mg/l)	6.5	11.0

* Note: The NMC target for Dissolved Oxygen is the Lower 95% Confidence Interval, which is defined as 9.37 mg/l

A water quality model using the USEPA's QUAL2K platform was developed by DRBC staff for the section of the Delaware River SPW area known as the Lower Delaware, the most recent update in June, 2012. The LD-WQM includes several segments that include information for the tributaries of the Lower Delaware River. The Pequest River segment was used for this analysis. The LD-WQM Pequest River segment was calibrated using: 1) in-stream water quality data sets from 2000-2004 provided by the docket holder, available from USEPA's STORET database, and available from USGS' NWIS database; and 2) effluent discharge information from NJPDES-permitted "significant" Pequest River watershed dischargers available from NJDEP's data miner website and effluent data measurements taken by the DRBC. A "significant" discharger is defined as a discharger having a design flow equal to or greater than 10,000 gpd and having an industrial process or domestic wastewater discharge (NJPDES-permitted

dischargers that solely discharge stormwater were not included in the model). For those contaminants for which there was no discharge information, typical effluent data was used from DMRs from New Jersey facilities (New Jersey facility DMRs were used because more nutrient data was available than from facilities monitoring in Pennsylvania).

The following is a list of the known, NJPDES-permitted "significant" Pequest River watershed dischargers (including the Oxford WWTP) included in the LD-WQM Pequest Segment:

Table B-2: NJPDES-permitted "significant" Pequest River watershed dischargers

WWTP/IWTP Name or Owner	DRBC Docket No.	NJPDES No.	Permitted Flow (mgd)
Allamuchy Township MUA WWTP	D-1978-024 CP-1	NJ0020605	0.6
Pequest State Fish Hatchery / WWTP	D-1981-008 CP-1	NJ0033189	8.05*
Oxford WWTP	D-1971-096 CP-5	NJ0035483	0.5

* The Pequest State Fish Hatchery discharges a total of 8.05 mgd from a combined outfall, consisting of 0.295 mgd of treated effluent from the Hatchery WWTP and 7.76 mgd of groundwater well water diverted through the Hatchery raceway. The two (2) flow contributions are combined prior to being discharged to the Pequest River.

The LD-WQM Pequest River segment was used to analyze the impact to EWQ at the BCP from the proposed upgrade to the Oxford WWTP, specifically the increase in pollutant loadings between: 1) the pollutant loads that the WWTP was discharging at the time EWQ was established (2000–2004); and 2) the pollutant loads expected at the hydraulic design capacity of the upgraded WWTP. Also included in the model was an analysis of the two (2) remaining Pequest River watershed dischargers listed above, discharging at their pollutant loads at the time EWQ was established and at their full permitted loads.

In order to demonstrate compliance with the NMC requirement, DRBC staff evaluated several discharge scenarios (model runs) which included all three (3) "significant" Pequest River watershed dischargers. The model was used to predict in-stream concentrations of Ammonia-Nitrogen (NH_3-N), Fecal Coliform, Dissolved Oxygen (DO), Nitrate (NO_3-N), Total Nitrogen (TN), Total Phosphorous (TP), and Total Suspended Solids (TSS) under different discharge scenarios.

Discharge Scenario (Model Run) No. 1 evaluated the three (3) Pequest River watershed dischargers (including the Oxford WWTP) discharging at their median flows and effluent concentrations at the time that EWQ was established for the Lower Delaware SPW area (2000 – 2004). The actual load calculated from the median effluent flows and concentrations from each discharger is referred to as the "grandfathered load", defined as the pollutant load at which each discharger was discharging when EWQ was established (Section 3.10.3 a. 16)(b)). The LD-WQM Pequest River segment was calibrated to predict EWQ at the BCP with the dischargers discharging at their grandfathered loads.

For each of the three (3) Pequest River watershed dischargers, the grandfathered load is estimated by using the median historical flow and concentration sampling data from each discharger to calculate the pollutant load that the discharger was discharging at time of SPW designation, in kilograms per day (kg/day). For the Lower Delaware River, which was designated as SPW in 2005, sampling data for the years leading up to SPW designation (2000-2004) was used to establish the grandfathered load. Where effluent data at the time of SPW designation was not available for the three (3) Pequest River dischargers, current effluent data was used if the existing treatment technology operations and flow conditions for each of the dischargers are similar to those at the time of SPW designation.

Model Run No. 2 evaluated the three (3) Pequest River watershed dischargers (including the Oxford WWTP) discharging at their fully permitted flows and their permitted effluent concentration limits. Note that the proposed Oxford WWTP is designed to meet phased limits (effective date March 1, 2014) imposed by the NJDEP in the NJPDES permit. For the parameters for which there are no limits (from either NJDEP or DRBC) the effluent limits for the Oxford WWTP used in **Model Run No. 2** are the proposed Oxford WWTP design criteria, as included in the docket holder's Application, and listed below:

Table B-3: Proposed Oxford WWTP upgrade design criteria

PARAMETER		Design Concentration (mg/l)	Design Load (kg/day)
NH_3-N (mg/l)*	Summer	7.6	14.4
	Winter	17.0	32.2
DO (mg/l)**		5.0	N/A
Fecal Coliform (#/100ml)**		200	N/A
NO_3-N (mg/l) ***		40	N/A
TN (mg/l)****	Summer	48.6	N/A
	Winter	58.0	
TP (mg/l)*****	Summer	0.57*****	1.08
	Winter	1.05*****	1.99
TSS (mg/l)**		30	N/A

* Concentration and Load limits imposed in NJPDES permit

** Concentration limits only imposed in NJPDES permit

*** No limits imposed in NJPDES permit; Note: Nitrate-Nitrogen design criteria based on maximum concentration allowable to avoid operation plant operation upsets

**** No limits imposed in NJPDES permit; Note: Total Nitrogen design criteria is the sum of the Ammonia design criteria + Nitrate design criteria plus an additional allowance for the remaining form of Nitrogen (Organic Nitrogen), which is estimated at 1.0 mg/l from typical discharger effluent data

***** Load limits only imposed in NJPDES permit; concentration limits included for design purposes

Commission staff noted that as the three (3) Pequest River watershed dischargers (including the Oxford WWTP) increase their flows and loadings to the docketed and permitted allowances, the LD-WQM Pequest River segment predicted a measurable change to EWQ at the Pequest BCP for three (3) parameters: Ammonia-Nitrogen, Nitrate-Nitrogen, and Total Nitrogen. For the remaining parameters (Dissolved Oxygen, Fecal Coliform, Total Phosphorous, and Total

Suspended Solids), the LD-WQM Pequest River segment predicted no measurable change to EWQ at the Pequest BCP with the (3) Pequest River watershed discharging at their docketed and permitted flow and loading allowances.

DRBC staff have determined that the docket holder's grandfathered load for Ammonia-Nitrogen is 16.2 kg/day (35.7 lbs/day). However, the current NJDPES permit includes an effluent load limit for Ammonia of 14.4 kg/day, from March through October. Therefore, DRBC staff have determined that no further analysis is required with regard to the NMC to EWQ requirement for Ammonia-Nitrogen, since there will be no incremental increase in the facility's Ammonia-Nitrogen load, referred to as "holding the load". The Ammonia-Nitrogen effluent limits are included in EFFLUENT TABLE A-4 in the Section A.4.d. of this docket.

For the remaining parameters for which a measurable change to EWQ was predicted (Nitrate-Nitrogen and Total Nitrogen), an additional modeling run of the LD-WQM Pequest River segment was performed in order to identify the effluent requirements for the Oxford WWTP discharge necessary to meet NMC to EWQ at the Pequest BCP.

Model Run No. 3 evaluated the allowable Oxford WWTP effluent limits for which NMC to EWQ is predicted with the Pequest Hatchery WWTP and the Allamuchy Township MUA WWTP discharging at their grandfathered loads.

The following effluent limits were obtained:

Table B-4: Oxford WWTP load limits

PARAMETER	Allowable Load (kg/day)	Concentration @ Design Flow of 0.5 mgd (mg/l)*
NO_3-N (mg/l)	58.7	31.0
TN (mg/l) (3-1 to 10-31) (11-1 to 2-29)	75.0 92.8	39.6 49.0

* Concentration at design flow provided for design and informational purposes only; this docket includes a load limit only

The Total Nitrogen allowable effluent limits are calculated as the sum of the effluent limits for Ammonia-Nitrogen (14.4 kg/day; 7.6 mg/l) and Nitrate-Nitrogen (58.7 kg/day; 31.0 mg/l), plus an additional allowance for the remaining form of Total Nitrogen (Organic Nitrogen). The additional load allowance for Organic Nitrogen is calculated using the average concentration from typical discharger effluent data (1.0 mg/l) and the design Oxford WWTP discharge rate (0.5 mgd), equivalent to 1.9 kg/day.

Based on the results of the LD-WQM Pequest Segment, the proposed upgraded Oxford WWTP, operating at the effluent limits included in EFFLUENT TABLES A-3 & A-4 for Ammonia-Nitrogen, Dissolved Oxygen, Fecal Coliform, Nitrate-Nitrogen, Total Nitrogen, Total Phosphorous, and Total Suspended Solids, will meet the NMC to EWQ requirement.

Article 3.10.3A.2.e.1). and 2). of the *Water Quality Regulations, Administrative Manual - Part III,* states that projects subject to review under Section 3.8 of the Compact that are located in the drainage area of Special Protection Waters must submit for approval a Non-Point Source Pollution Control Plan (NPSPCP) that controls the new or increased non-point source loads generated within the portion of the applicant's service area which is also located within the drainage area of Special Protection Waters. The service area of the docket holder is located within in the drainage area to the Special Protection Waters. Since this project does entail additional construction of facilities, but no increase in the WWTP service area (i.e., there are new or increased non-point source loads associated with construction of the upgraded WWTP, but no new or increased non-point source loads associated with a service area expansion), the non-point source pollution control plan requirement is applicable at this time for the construction of the proposed WWTP upgrade. Oxford Township adopted a municipal stormwater ordinance in accordance with the State of New Jersey's model stormwater ordinance in April, 2006, and therefore the post-construction stormwater management requirement for the proposed construction and land disturbance associated with the Oxford WWTP upgrade is considered to be satisfied. The docket holder is required to submit a soil erosion and sediment control plan for the proposed land disturbance associated with the Oxford WWTP upgrade. Accordingly, Conditions II.r. and II.s have been included in the DECISION section of this docket.

Total Dissolved Solids (TDS) Effluent Limit Determination

The Commission's basin-wide TDS effluent limit is 1,000 mg/l (Section 3.10.4.D.2. of the Commission's WQR). In addition the Commission's basin-wide regulations require that the effluent not result in an in-stream TDS that is 1) greater than 133% of the background (Section 3.10.3.B.1.b. of the Commission's WQR), or 2) a receiving stream's resultant TDS concentration of 500 mg/l or more (Section 3.10.3 B.2. of the Commission's WQR).

The 133% of the background TDS requirement is for the protection of aquatic life. The 500 mg/l TDS requirement is to protect the use of the receiving stream as a drinking water source. The EPA's Safe Drinking Water Act's secondary standard for TDS is 500 mg/l.

The docket holder operates a publicly owned municipal wastewater treatment plant that accepts wastewater from its service area which includes boiler blowdown from Covanta Industries (Covanta) and leachate from the PCFAWC landfill. Influent from these facilities is high in TDS, averaging 1,500 mg/l from Covanta and 7,000 mg/l from the PCFAWC landfill. Since TDS cannot be removed through conventional wastewater treatment technologies, the docket holder's WWTP has elevated levels of TDS in the effluent, exceeding the Commission's basin-wide TDS effluent limit of 1,000 mg/l.

Docket No. D-1971-096 CP-4, approved by the DRBC on December 12, 2007 for the Oxford WWTP, includes an effluent TDS limitation of 7,000 pounds per day, which the docket holder has requested to be continued in this docket (Docket No. D-1971-096 CP-5). 7,000 lbs/day is the equivalent of 3,182 kg/day.

The in-stream flow at which background TDS is to be determined is the minimum consecutive 7-day flow with a 10-year recurrence interval (referred to as the $Q_{7\text{-}10}$ flow). At the

project site, the Pequest River's estimated Q_{7-10} flow is 18 cfs (11.6 mgd). The background TDS concentration of the Pequest River at the WWTP discharge location during Q_{7-10} flow is estimated to be 292 mg/l. Therefore, the Pequest River TDS in-stream concentration not to exceed 133% of background is 292 mg/l x 133% = 388 mg/l.

Based on a mass load calculation, during Q_{7-10} flow, the Pequest River TDS at the Oxford WWTP discharge location as a result of the Oxford WWTP discharging at the design flow rate (0.5 mgd) and the effluent TDS load limit of 7,000 lbs/day is estimated to be 349 mg/l. The Pequest River TDS as a result of the Oxford WWTP discharging at the current average discharge rate of 0.3 mgd and the effluent TDS load limit of 7,000 lbs/day is estimated to be 355 mg/l. The Pequest River TDS as a result of the Oxford WWTP discharging at its minimum average discharge rate from the last five (5) years (0.23 mgd, September, 2009) and the effluent TDS load limit of 7,000 lbs/day would be 357 mg/l. Under the above three (3) discharge scenarios, the WWTP discharging at a load limit of 7,000 lbs/day is not expected to exceed 133% of background (388 mg/l).

Although the discharge exceeds DRBC's basin-wide TDS effluent limit of 1,000 mg/l, DRBC staff determined the discharge to be compatible with the Commission's designated water uses and water quality objectives in conformance with DRBC Water Quality Regulations since the in-stream concentrations in the Delaware River are not expected to exceed the Commission's criteria of 133% of background or result in receiving stream's resultant TDS concentration of 500 mg/l or more. This docket continues the effluent TDS limitation of 7,000 pounds per day, which is the equivalent of 3,182 kg/day (See EFFLUENT TABLES A-2 and A-4 in the Section A.4.d. of this docket).

At the project WWTP discharge location, the Pequest River has an estimated seven-day low flow with a recurrence interval of ten years of 11.6 mgd (18 cfs). The ratio of this low flow to the average design wastewater discharge from the 0.5 mgd plant is 23 to 1.

The nearest surface water intake of record for public water supply downstream of the project discharge is owned and operated by the City of Easton, Pennsylvania, approximately 21 miles downstream on the Delaware River.

The project does not conflict with the Comprehensive Plan and is designed to prevent substantial adverse impact on the water resources related environment, while sustaining the current and future water uses and development of the water resources of the Basin.

The limits in the NJPDES Permit are in compliance with Commission effluent quality requirements, where applicable.

The project is designed to produce a discharge meeting the effluent requirements as set forth in the Commission's WQR.

C. DECISION

I. Effective on the approval date for Docket No. D-1971-096 CP-5 below:

a. The project described in Docket No. D-1971-096 CP-4 is removed from the Comprehensive Plan to the extent that it is not included in Docket No. D-1971-096 CP-5; and

b. Docket No. D-1971-096 CP-4 is terminated and replaced by Docket No. D-1971-096 CP-5

c. The project and the appurtenant facilities described in the Section A "Physical Features" of this docket shall be added to the Comprehensive Plan.

II. The project and appurtenant facilities as described in the Section A "Physical features" of this docket entitled "Physical features" above are approved pursuant to Section 3.8 of the *Compact*, subject to the following conditions:

a. Docket approval is subject to all conditions, requirements, and limitations imposed by the NJDEP in its NJPDES permit and Treatment Works Approval, and such conditions, requirements, and limitations are incorporated herein, unless they are less stringent than the Commission's. Commission approval of the project upgrade is contingent upon NJDEP's approval of the Treatment Works Approval permit.

b. The facility and operational records shall be available at all times for inspection by the DRBC.

c. The facility shall be operated at all times to comply with the requirements of the *Water Quality Regulations* of the DRBC.

d. Until March 1, 2014, the docket holder shall comply with the requirements contained in EFFLUENT TABLES A-1 and A-2 in Section A.4.d. of this docket. Effective March 1, 2014, the docket holder shall comply with the requirements contained in EFFLUENT TABLES A-3 and A-4 in Section A.4.d. of this docket. The docket holder shall submit DRBC required monitoring results directly to DRBC (Project Review Section). The monitoring results shall be submitted annually absent any observed limit violations (by January 31st). If a DRBC effluent limit is violated, the docket holder shall submit the result(s) to the DRBC within 30 days of the violation(s) and provide a written explanation that states the action(s) the docket holder has taken to correct the violation(s) and protect against any future violations.

e. Except as otherwise authorized by this docket, if the docket holder seeks relief from any limitation based upon a DRBC water quality standard or minimum treatment requirement, the docket holder shall apply for approval from the Executive Director or for a docket revision in accordance with Section 3.8 of the *Compact* and the *Rules of Practice and Procedure*.

f. If at any time the receiving treatment plant proves unable to produce an effluent that is consistent with the requirements of this docket approval, no further connections shall be permitted until the deficiency is remedied.

g. Nothing herein shall be construed to exempt the docket holder from obtaining all necessary permits and/or approvals from other State, Federal or local government agencies having jurisdiction over this project.

h. The discharge of wastewater shall not increase the ambient temperatures of the receiving waters by more than 5°F until stream temperatures reach 50°F, nor by more than 2°F when stream temperatures are between 50°F and 58°F, nor shall such discharge result in stream temperatures exceeding 58°F. (Trout Waters)

i. Sound practices of excavation, backfill and reseeding shall be followed to minimize erosion and deposition of sediment in streams.

j. Within 10 days of the date that construction of the project has started, the docket holder shall notify the DRBC of the starting date and scheduled completion date.

k. Final plans and specifications for the proposed project WWTP upgrade are required to be submitted within three (3) months of docket approval (by December 12, 2012). Within 30 days of completion of construction of the approved project, the docket holder is to submit to the attention of the Project Review Section of DRBC a Construction Completion Statement ("Statement") signed by the docket holder's professional engineer for the project. The Statement must (1) either confirm that construction has been completed in a manner consistent with any and all DRBC-approved plans or explain how the as-built project deviates from such plans; (2) report the project's final construction cost as such cost is defined by the project review fee schedule in effect at the time the application was made; and (3) indicate the date on which the project was (or is to be) placed in operation. In the event that the final project cost exceeds the estimated cost used by the docket holder to calculate the DRBC project review fee, the statement must also include (4) the amount of any outstanding balance owed for DRBC review. The outstanding balance will equal the difference between the fee paid to the Commission and the fee calculated on the basis of the project's final cost, using the formula and definition of "project cost" set forth in the DRBC's project review fee schedule in effect at the time application was made.

l. The project WWTP upgrade shall be completed within three (3) years of approval of this docket or the docket holder shall demonstrate to the Executive Director that it has expended substantial funds (in relation to the cost of the project) in reliance upon this docket approval. If the modifications have not been completed within three years of Docket Approval and the docket holder does not submit a cost analysis demonstrating substantial funds have been expended, Commission approval of the project WWTP upgrade shall expire. If the approval of the upgrade expires under this condition, the docket holder shall file a new application with the Commission and receive Commission approval prior to initiating construction of any modifications.

m. The docket holder is permitted to treat and discharge wastewaters as set forth in the Area Served Section of this docket, which incorporates by reference Section B (Type of Discharge) and Section D (Service Area) of the docket holder's Application to the extent consistent with all other conditions of this DECISION Section.

n. The docket holder shall make wastewater discharge in such a manner as to avoid injury or damage to fish, wildlife, or aquatic life and shall avoid any injury to public or private property.

o. No sewer service connections shall be made to newly constructed premises with plumbing fixtures and fittings that do not comply with water conservation performance standards contained in Resolution No. 88-2 (Revision 2).

p. Nothing in this docket approval shall be construed as limiting the authority of DRBC to adopt and apply charges or other fees to this discharge or project.

q. The issuance of this docket approval shall not create any private or proprietary rights in the waters of the Basin, and the Commission reserves the right to amend, suspend or rescind the docket for cause, in order to ensure proper control, use and management of the water resources of the Basin.

r. Prior to allowing connections from any new service areas or any new developments, the docket holder shall either submit and have approved by the Executive Director of the DRBC a Non-Point Source Pollution Control Plan (NPSPCP) in accordance with Section 3.10.3.A.2.e, or receive written confirmation from the Executive Director of the DRBC that the new service area is in compliance with a DRBC approved NPSPCP.

s. Prior to the project WWTP upgrade going to construction, the docket holder shall submit to the Executive Director erosion and sediment control plans for the proposed construction and land disturbance associated with the Oxford WWTP upgrade in accordance with the Non-Point Source Pollution Control Plan (NPSPCP) requirements of Section 3.10.3.A.2.e. of the WQR.

t. Unless an extension is requested and approved by the Commission in advance, in accordance with paragraph 11 of the Commission's Project Review Fee schedule (Resolution No. 2009-2), the docket holder is responsible for timely submittal of a docket renewal application on the appropriate DRBC application form at least 12 months in advance of the docket expiration date set forth below. The docket holder will be subject to late charges in the event of untimely submittal of its renewal application, whether or not DRBC issues a reminder notice in advance of the deadline or the docket holder receives such notice. In the event that a timely and complete application for renewal has been submitted and the DRBC is unable, through no fault of the docket holder, to reissue the docket before the expiration date below (or the later date established by an extension that has been timely requested and approved), the terms and conditions of the current docket will remain fully effective and enforceable against the docket holder pending the grant or denial of the application for docket approval.

u. The Executive Director may modify or suspend this approval or any condition thereof, or require mitigating measures pending additional review, if in the Executive Director's judgment such modification or suspension is required to protect the water resources of the Basin.

v. Any person who objects to a docket decision by the Commission may request a hearing in accordance with Article 6 of the Rules of Practice and Procedure. In accordance with Section 15.1(p) of the Delaware River Basin Compact, cases and controversies arising under the Compact are reviewable in the United States district courts.

w. The docket holder may request of the Executive Director in writing the substitution of specific conductance for TDS. The request should include information that supports the effluent specific correlation between TDS and specific conductance. Upon review, the Executive Director may modify the docket to allow the substitution of specific conductance for TDS

x. Nothing in this docket constitutes a defense to any penalty action for past conduct of the docket holder or ongoing activity not authorized by this approval. In particular, renewal of this docket does not resolve violations – whether in the past or continuing – of provisions of the Delaware River Basin Compact ("Compact") or any rule, regulation, order or approval duly issued by the Commission or the Executive Director pursuant to the Compact. The Commission reserves its right to take appropriate enforcement action against the docket holder, including but not limited to recovery of financial penalties consistent with Section 14.17 of the Compact, for any and all such prior or continuing violations.

y. The docket holder is prohibited from treating/pre-treating any hydraulic fracturing wastewater from sources in or out of the Basin at this time. Should the docket holder wish to treat/pre-treat hydraulic fracturing wastewater in the future, the docket holder will need to first apply to the Commission to renew this docket and be issued a revised docket allowing such treatment and an expanded service area. Failure to obtain this approval prior to treatment/pre-treatment will result in action by the Commission.

BY THE COMMISSION

DATE APPROVED:

EXPIRATION DATE: October 31, 2016